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SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for the  
MISSOURI and ARKANSAS  
DRAINAGE BASINS

May 1, 1943

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Issued by the  
United States Department of Agriculture  
Soil Conservation Service  
Division of Irrigation  
In Cooperation with  
The Colorado Agricultural Experiment Station  
Colorado State College  
Fort Collins, Colorado

May 10, 1943

150737

UNCLASSIFIED

1997





# SNOW SURVEYS AND IRRIGATION WATER FORECASTS FOR MISSOURI AND ARKANSAS RIVERS

May 1, 1943

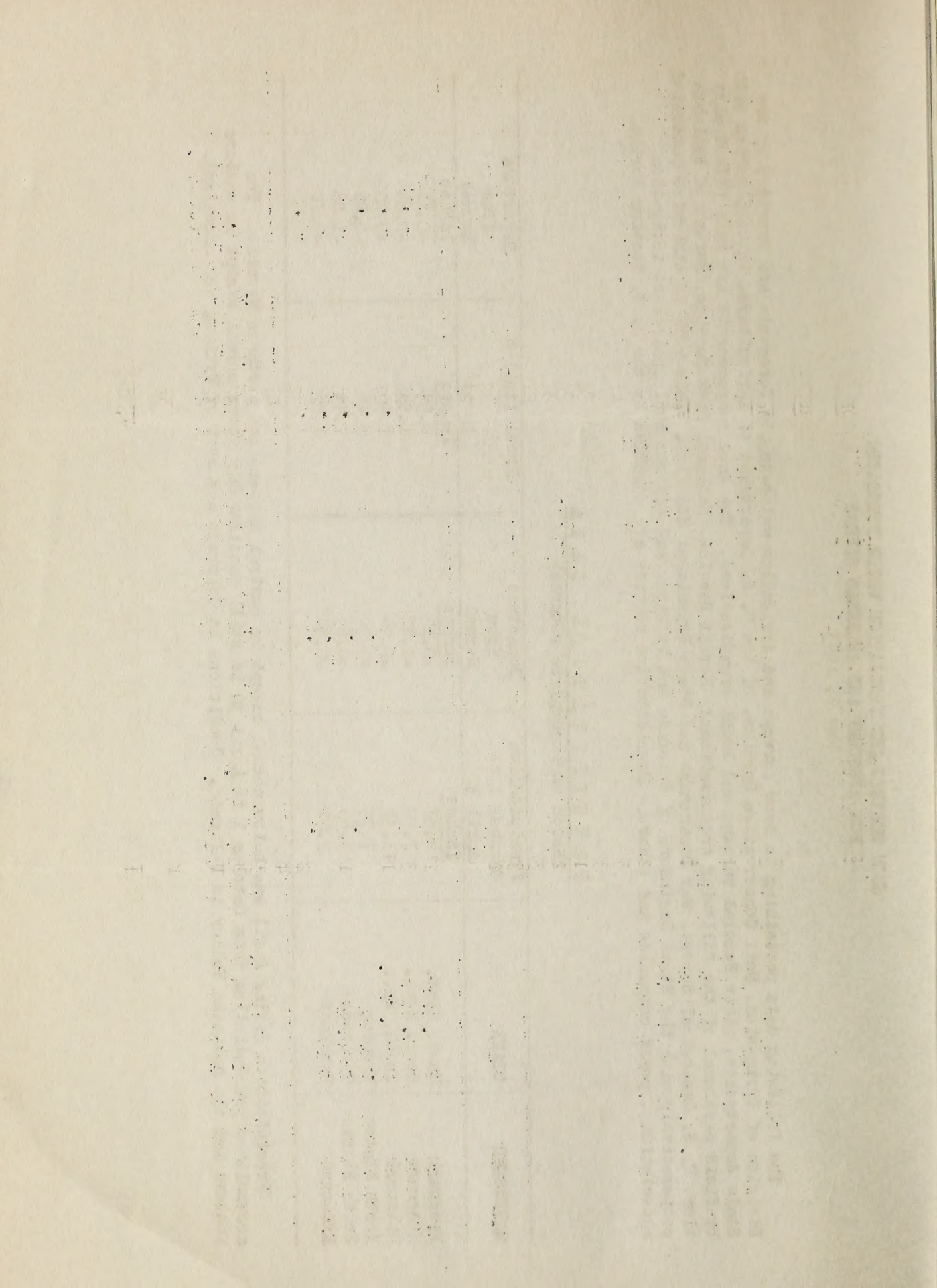
The following data pertaining to snow surveys and irrigation water-supply forecasts are provided by the Division of Irrigation, Soil Conservation Service, of the U. S. Department of Agriculture, in cooperation with State departments, other Federal bureaus and local organizations. The snow measurements are made principally by field personnel of the following organizations: Forest Service, National Park Service, Bureau of Reclamation, U. S. Geological Survey, War Department and State Experiment Stations. This work is otherwise conducted cooperatively with the State Engineers of Colorado and Wyoming, and various municipalities, irrigation associations, power companies and others. Precipitation records are supplied by the U. S. Weather Bureau.

## PRECIPITATION DATA (Based on incomplete returns)

WATERSHED	STATE	Precipitation October 1 to April 30 Inches	Departure from Normal Inches	Precipitation April Inches	Departure from Normal Inches
Missouri	East. Mont.	4.67	-0.15	0.99	-0.11
Missouri	Cent. Mont.	7.20	+1.38	1.84	+0.64
Missouri	North. Wyo.	11.32	+2.94	1.99	+0.10
North Platte	Wyoming	7.79	+0.99	0.95	-0.40
South Platte	Colorado	9.63	+0.65	1.49	-1.06
Arkansas	Colorado	7.01	-0.60	1.27	-0.72

Precipitation during April was below normal except in central Montana and northern Wyoming. The accumulated precipitation from October 1 to April 30 is still considerably above normal except in eastern Montana and the Arkansas Valley in Colorado. Conditions in Colorado and most of Wyoming are excellent.







# SUMMARY OF MAY 1 SNOW SURVEYS AND COMPARISON OF DATA

## WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

WATERSHEDS	Snow Depth		Water Content		Number courses in Average	Snow Density		1943 Water Content in percent of	
	Eight Year Avg.*	1942	1943	Eight Year Avg.*		1942	1943	Eight Year Avg.*	1942
	In.	In.	In.	Eight Year Avg.*	1942	1943	Percent	Percent	Percent
MISSOURI RIVER									
Jefferson River	19.6	25.3	24.6	6.4	2	33	32	40	153
Madison River	37.9	26.1	54.2	16.9	5	45	42	51	164
Gallatin River	28.2	29.8	32.2	10.6	3	38	34	45	138
Missouri River**	12.8	10.8	16.9	4.3	4	34	37	33	130
Marias River	13.6	2.7	20.0	6.1	2	45	37	46	151
Yellowstone River	20.7	9.9	37.9	7.3	1	35	27	44	230
Shoshone River	36.5	22.0	51.5	14.6	2	40	32	48	168
Bighorn River	19.9	10.5	24.4	7.2	12	36	29	43	144
Tongue River	6.5	6.7	0.0	2.2	1	34	27	--	--
Powder River	13.6	4.3	9.6	3.8	2	28	19	27	68
North Platte River	45.4	49.7	27.4	18.2	10	40	34	45	68
Sweetwater River	30.2	13.7	39.3	10.8	2	36	26	44	161
Laramie River	22.6	30.5	15.2	8.5	5	38	27	45	80
South Platte River***	14.0	21.6	13.0	4.4	3	31	30	35	102
Crow Creek	5.0	21.0	0.0	1.3	1	26	21	--	--
Poudre River	31.5	39.8	22.7	11.7	5	37	31	44	86
Big Thompson River	54.4	65.7	41.4	18.3	2	34	27	40	91
St. Vrain River	36.4	53.0	37.0	12.9	1	35	27	39	113
Boulder Creek	29.6	47.0	25.0	10.8	2	36	32	45	105
Clear Creek	36.5	50.0	15.0	12.5	1	34	32	40	48
ARKANSAS RIVER	24.8	38.2	10.3	8.2	10	33	32	39	49
									33

\*Some for shorter periods. \*\*Headwaters of Missouri River. \*\*\*Above Denver, Colo.



THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

RESEARCH REPORT

NO. 100

BY

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AND

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CHICAGO, ILLINOIS

1955

UNIVERSITY OF CHICAGO PRESS



## WATER SUPPLY OUTLOOK

## Montana

Missouri River and Tributaries. The water content of the snow cover over the headwaters of the Missouri and its tributaries is very much in excess of that of last year and also above the past eight-year average as determined by recent snow surveys throughout the high mountain country of these drainage basins. Nearly 10 feet of snow was measured May first at Lewis Lake Divide, in Yellowstone Park, which contained over 5 feet of water. A heavy run-off is to be expected in the Missouri, likewise in its several tributaries, with stages approaching the limits of uncontrolled flow. The reservoir filling throughout the Missouri and tributaries in Montana is on the average very favorable with several now at full capacity and good prospects that practically all will reach spillway level. Soil moisture and range conditions are generally good.

## Wyoming

Shoshone River. The water content of the snow on the Sylvan Pass course, within the Yellowstone Park, was 14.5 inches May first and a year ago it was 2 inches. The Shoshone Reservoir accumulated about 100,000 acre-feet during April and its full capacity will be reached before June first. Soil moisture throughout the cultivated areas of the Shoshone Valley and its tributaries is good, also crop and range conditions are good. No shortage in irrigation water supply is anticipated this season.

Big Horn River. The May first snow cover on the headwaters of this stream and its tributaries is approximately three times that of a year ago. At Brooks Lake the snow depth, May first, was six feet and contained almost 3 feet of water. Last year at this time the water content was 12 inches. The run-off in the Big Horn will be much above normal this season and all reservoirs will fill to capacity. Over the irrigated areas throughout the Big Horn basin the soil moisture is good to excellent and crop and range conditions good. Farming operations are slightly behind schedule. The water supply outlook for this season is the best in years.

Powder and Tongue Rivers. The snow cover, May first, on the watershed of these streams was nil due to a deficiency of April precipitation and seasonal melting. The run-off in the Powder may be somewhat less than that anticipated a month ago and for the Tongue the seasonal irrigation supply will not exceed that of last year. The general soil moisture condition throughout these areas is fair to good with surface dry. Crop and range conditions are also fair to good but are showing need of precipitation. Reservoir filling is normal.

North Platte River. The water content of the snow over the headwaters of this stream is about three-quarters of that of last year at this time. At Old Battle and North French Creek snow courses the snow depth, May first, averaged more than five feet and contained about  $2\frac{1}{2}$  feet of water, which is almost identical with that of a year ago. Snow at lower elevations has suffered a considerable reduction in water content during April due to deficiency in precipitation and melting caused by above-normal temperatures. Stream flow is expected to be above normal with peak of run-off 15 to 20 days prior to usual period of high water. During April the main reservoirs on the North Platte accumulated about 225,000 acre-feet. It is probable that the filling during May will approach 1,300,000 acre-feet with additional storage in June. A substantial run-off may be expected this season in the Sweetwater.







The general soil moisture condition throughout the North Platte Valley is fair to good; crops and range are also fair to good. Stream flow is much above normal in Nebraska and the river in North Park is rising rapidly.

Laramie River. The outlook for the coming season's water supply for the Laramie drainage is still favorable, and there will be sufficient water for irrigation requirements throughout the valley. During April the water content of the snow cover was depleted somewhat due to melting which has brought the river to above-normal stage for this time of year. The peak run-off will occur earlier this year than usual and it is expected that the flow will hold up well into the summer months. Soil moisture, crop, and range conditions are good.

Ground Water. There was little change in the ground-water levels in Wyoming during 1942. Conditions are normal on the Laramie River and Crow Creek and there was a slight gain along Lodge Pole Creek.

#### Colorado

South Platte River and Tributaries. Above-normal temperatures and deficient precipitation over the watershed of the upper South Platte drainage reduced the water content of the snow cover as shown by the recent snow surveys over this area. The mountain reservoirs in this drainage are all full except Antero which is expected to make further gains during the run-off season. For the tributaries the May first snow surveys indicate, on the whole, a loss in the water content due to melting during the past month. These streams are now rising and the crest of the run-off period will be from 15 to 20 days earlier this season. The run-off in the Boulder Creeks, St. Vrain and Thompson will be heavy and the accumulated flows into the lower South Platte will result in much water passing out of the state unused. The reservoir filling along the main South Platte and its several tributaries is now practically 100 percent. It is likely that a substantial carry-over in many of these reservoirs will be possible this year. The soil moisture over this large drainage area is now good to excellent. Crop conditions are especially good and about 10 days in advance of normal development. There will be ample water throughout this area to meet all irrigation demands.

Ground Water. Generally the water table in the South Platte Basin is higher than last year especially on the tributaries where gains of from 2 to 8 feet are common. A few areas showed losses of a foot or less. The greatest general gains occurred in Prospect Valley, the Lone Tree Valley near Eaton and the Boxelder Valley near Wellington.

Arkansas River. The run-off in the Arkansas this season from snow cover will not exceed that of last year. The early melting will advance the peak flow two to three weeks with the period of high stage extending over a relatively short time. It is expected that the river will maintain a fair to moderate flow well in the summer. Most all reservoirs, mountain and plain, now are at or near capacity with assurance that ample storage will be available to meet all irrigation needs. Generally throughout the valley the soil moisture is good with crops well advanced.

Ground Water. In the Arkansas Valley the water table is higher than at this time last year. Gains up to 2½ feet are shown by some wells. The greatest increases occurred at Rocky Ford and Vineland.







MISSOURI AND ARKANSAS RIVER WATERSHEDS  
Summary of Federal and State Cooperative Snow Surveys  
Issued May 10, 1943, at Fort Collins, Colorado

Main Drainage and No. Snow Course	Local Drainage	State	Location		Elev.	National Forest	May 1 Snow Course Measurements										
			Locality	Descrip- tion			Av. Snow Depth		Av. Water Content								
							1942	1943	Av. @	1942	1943	In.	In.				
JEFFERSON RIVER																	
6	Camp Creek*	Idaho	6mi. N. Spencer	21-13N-36E	6800	Targhee	---	---	---	---	---	---	---	---	---	---	---
7	Moose Creek*	"	3mi. S. Gibbons P.	27-27N-21E	6200	Salmon	15.8	0.0	0.0	5.7	0.0	0.0	---	---	---	---	---
7	East Fork R. S.*	Mont.	13mi. NE. Sula	16-2N-17W	5400	Bitterroot	---	---	---	---	---	---	---	---	---	---	---
10	Gibbons Pass	"	Gibbons Pass	4-2S-19W	7100	"	4.2S-19W	4.3	1.4	2.0	1.4	1.4	---	---	---	---	---
30	Pipestone Pass	"	Pipestone Pass	11-1N-7W	7200	DeerLodge	11-1N-7W	---	---	---	---	---	---	---	---	---	---
	Elkhorn Hot Spgs	"	8mi. N. Polaris	15-4S-12W	8450	BeaverHead	15-4S-12W	34.3	11.5	14.1	18.1	18.1	---	---	---	---	---
31	Storm Lake	"	15mi. W. Anaconda	19-4N-13W	8100	DeerLodge	19-4N-13W	19.6	6.4	8.0	9.8	9.8	---	---	---	---	---
			Average for Drainage														
MADISON RIVER																	
2	Aster Creek*	Wyo.	Lewis Lake	44-3N110-6W	7700	Yel. Nat. P.	44-3N110-6W	64.2	28.4	19.1	19.1	19.1	---	---	---	---	---
8	Lewis L. Divide*	"	3mi. S. Lewis L.	44-2N110-7W	7900	"	44-2N110-7W	90.5	41.5	28.5	62.5	62.5	---	---	---	---	---
11	Norris Basin	"	Norris Basin	44-3N110-7W	7500	"	44-3N110-7W	T	---	T	---	---	---	---	---	---	---
3	Big Springs*	Idaho	Big Springs	34-14N-44E	6500	Targhee	34-14N-44E	7.9	2.8	0.6	7.4	7.4	---	---	---	---	---
16	West Yellowstone	Mont.	W. Yellowstone	34-13S-5E	6700	Gallatin	34-13S-5E	21.2	9.2	6.4	17.6	17.6	---	---	---	---	---
	Twenty-one Mile	"	8mi. S. Gallatin	1-11S-5E	7150	Yel. Nat. P.	1-11S-5E	5.9	2.4	0.2	0.9	0.9	---	---	---	---	---
	Hebgen Dam	"	Hebgen Dam	22-11S-3E	6550	Gallatin	22-11S-3E	37.9	16.9	11.0	27.8	27.8	---	---	---	---	---
			Average for Drainage														
GALLATIN RIVER																	
	Devil's Slide	Mont.	20mi. S. Bozeman	14-5S-6E	8100	Gallatin	14-5S-6E	54.4	19.7	20.4	24.4	24.4	---	---	---	---	---
	Hood Meadow Extn.	"	14mi. "	22-4S-6E	6600	"	22-4S-6E	9.0	2.8	3.1	1.7	1.7	---	---	---	---	---
	Mystic Lake No. 1	"	12mi. SE.	31-3S-7E	6600	"	31-3S-7E	---	---	---	---	---	---	---	---	---	---
	Mystic Lake No. 2	"	"	31-3S-7E	6600	"	31-3S-7E	---	---	---	---	---	---	---	---	---	---
	Twenty-One Mile	"	8mi. S. Gallatin	1-11S-5E	7150	Yel. Nat. P.	1-11S-5E	21.2	9.2	6.4	17.6	17.6	---	---	---	---	---
	Ross Peak	"	12mi. N. Bozeman	10-1N-6E	7000	Gallatin	10-1N-6E	---	---	---	---	---	---	---	---	---	---
	New World Trail	"	8mi. SE.	13-3S-6E	7000	"	13-3S-6E	28.2	10.6	10.0	14.6	14.6	---	---	---	---	---
			Average for Drainage														

\*On adjacent drainage  
Average for period of record

\*On adjacent drainage

@Average for period of record

April 15 Readings.





MISSOURI AND ARKANSAS RIVER WATERSHEDS  
Summary of Federal and State Cooperative Snow Surveys  
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Main Drainage and Snow Course		Local Drainage	Location		Elev.	National Forest	May 1 Snow Course Measurements			
No.	Snow Course		State	Locality	Description			Av. Snow Depth	Av. Water Content	
							In.	1942	1943	
							In.	In.	Av. @	In.
MISSOURI RIVER (Headwaters)										
6	Chessman Res.	Tennile	Mont.	11mi. SW. Helena	2-8N-5W	6200	Helena	3.2	1.0	0.3
11	Goat Mountain	South Fork	"	2 1/2 mi. W. Gilman	47-5N12-9W	7000	Lewis & Clark	--	--	--
36	Stemple Pass	Canyon Creek	"	Stemple Pass	16-13N-7W	6900	Helena	13.9	--	--
41	Tennile Cr. Lower	Tennile	"	17mi. SW. Helena	13-8N-6W	6250	"	4.2	2.6	0.8
42	Tennile "Middle	"	"	"	13-8N-6W	6800	"	17.5	16.2	5.5
43	Tennile Cr. Upper	"	"	"	19-8N-5W	8000	"	26.3	23.6	9.4
	Grasshopper	Grasshopper Cr.	"	6mi. S.W. S. Spgs.	19-9N-8E	7000	Lewis & Clark	--	--	--
	King's Hill	Belt Creek	"	2 1/2 mi. W. S. Spgs.	35-13N-7E	7950	"	--	--	--
	Orville Harris	Mussellshell R	"	12mi. E.W. S. Spgs.	31-10N-9E	6500	"	--	--	--
	Half Moon	Judith River	"	19mi. S. Lewiston	22-12N-18E	6000	"	--	--	--
Average for Drainage										
							12.8	10.8	16.9	4.3
MARIAS RIVER										
7	Desert Mountain*	Cutbank Cr.	Mont.	4mi. S. Belton	24-31N-19W	5600	Flathead	15.4	4.2	1.4
20	Marias Pass	Two Medicine	"	Summit	48-3N13-4W	5250	Glacier NP	11.8	1.2	0.5
Average for Drainage										
							13.6	2.7	20.0	6.1
YELLOWSTONE RIVER										
14	Dome Lake	Goose Creek	Wyo.	Dome Lake	11-53N-87W	8800	Big Horn	10.7	10.7	2.8
40	Lupine Creek	Lupine Creek	"	11mi. SE. Gardiner	44-9N110-6W	7300	Yel. Nat. P.	T	T	T
41	Blacktail Deer Cr.	Blk. Tail Deer	"	11mi. "	44-9N110-6W	7500	"	T	T	T
43	Lodge Pole	Lodge Pole Cr.	"	34mi. NW. Cody	32-56N-106W	8200	Shoshone	20.7	9.9	2.7
3	Canyon	Tower Creek	"	8mi. N. Canyon Jct	44-7N110-5W	7750	Yel. Nat. P.	12.4	12.4	3.5
	Cook City	Soda Bottle Cr.	Mont.	Cook City	25-9S-14E	7400	Absaroka	T	T	T
7	Lake Camp	Yellowstone	Wyo.	3mi. NE. Fishing Br.	44-6N110-4W	7850	Yel. Nat. P.	13.3	13.3	4.0
Average for Drainage										
							20.7	9.9	37.9	7.3

\*Adjacent Drainage

@Average for period of record







## MISSOURI AND ARKANSAS RIVER WATERSHEDS

Summary of Federal and State Cooperative Snow Surveys

Issued May 10, 1943, at Fort Collins, Colorado.

Main Drainage and Snow Course	Local Drainage	State	Locality	Description	Elev.	National Forest	May 1 Snow Cover Measurements			
							Av. Snow Depth	Av. Water Content	1942	1943
No.							In.	Av. @	In.	In.
<b>SHOSHONE RIVER</b>										
32	Sylvan Pass	Wyo.	Sylvan Pass	12-52N-110W	7100	Yel. Nat. F.	19.1	7.3	30.3	14.5
33	Up. Hardpan Basin	"	27 mi. SW. Cody	25-51N-106W	9500	Shoshone	--	--	--	8.1
50	Brooks Lake #3*	"	Brooks Lake	23-44N-110W	9200	Washakie	53.9	21.9	12.0	34.7
				Average for Drainage			36.5	14.6	7.0	24.6
<b>BIGHORN RIVER</b>										
13	Tensleep Cr.	Wyo.	15 mi. NE. Tensleep	30-49N-86W	8300	Bighorn	9.9	3.7	5.9	0.1
16	Ranger Creek	"	14 mi. E. Shell	32-53N-88W	8800	"	19.3	6.3	11.1	7.0
14	Dome Lake*	"	Dome Lake	11-53N-87W	8800	Bighorn	--	--	10.7	--
45	Sawmill Glade	"	13 mi. SW. Lander	3-31N-101W	8500	Washakie	11.8	3.7	3.0	2.4
46	Blue Ridge	"	15 mi. " "	23-31N-101W	9500	"	28.5	9.3	16.9	12.8
47	South Pass	"	19 mi. " "	13-30N-101W	9000	"	30.7	10.6	14.5	18.0
48	Wood River	"	42 mi. SW. Cody	28-46N-103W	8000	Shoshone	7.5	2.2	1.5	2.3
49	Sheridan Cr. R. S. #2	"	16 mi. NW. Dubois	3-42N-109W	7500	Washakie	2.3	1.0	0.0	1.6
50	Brooks Lake #3	"	Brooks Lake	23-44N-110W	9200	"	53.9	21.9	39.6	34.7
51	St. Lawrence Cr.	"	27 mi. NW. Lander	26-1N-4W	9000	Shos. I. R.	21.8	7.5	6.9	11.2
52	Mosquito Park R. S.	"	18 mi. " "	23-25-3W	9500	"	26.6	9.5	19.2	13.6
53	DuNoir	"	9 mi. NW. Dubois	27-42N-108W	3750	Washakie	19.4	7.1	27.6	12.3
54	T-Cross Ranch	"	12 mi. N. Dubois	1-43N-107W	8000	"	7.1	3.3	0.0	8.5
				Average for Drainage			19.9	7.2	10.5	10.4
<b>TONGUE RIVER</b>										
14	Dome Lake	Wyo.	Dome Lake	11-53N-87W	8800	Bighorn	--	--	10.7	--
17	Big Goose Cr. R. S.	"	20 mi. SW. Sheridan	4-53N-86W	7700	"	6.5	2.2	6.7	0.0
				Average for Drainage						
<b>POWDER RIVER</b>										
30	Red Fork	Wyo.	23 mi. W. Kaycee	18-43N-85W	7500	Off Forest	10.1	3.1	2.6	0.1
31	Sour Dough	"	10 mi. W. Klondike	17-49N-84W	8500	Bighorn	17.1	4.6	6.0	5.2
				Average for Drainage			13.6	3.8	4.3	2.6

\*On adjacent drainage

@Average for period of record

= Estimated





MISSOURI AND ARKANSAS RIVER WATERSHEDS  
Summary of Federal and State Cooperative Snow Surveys  
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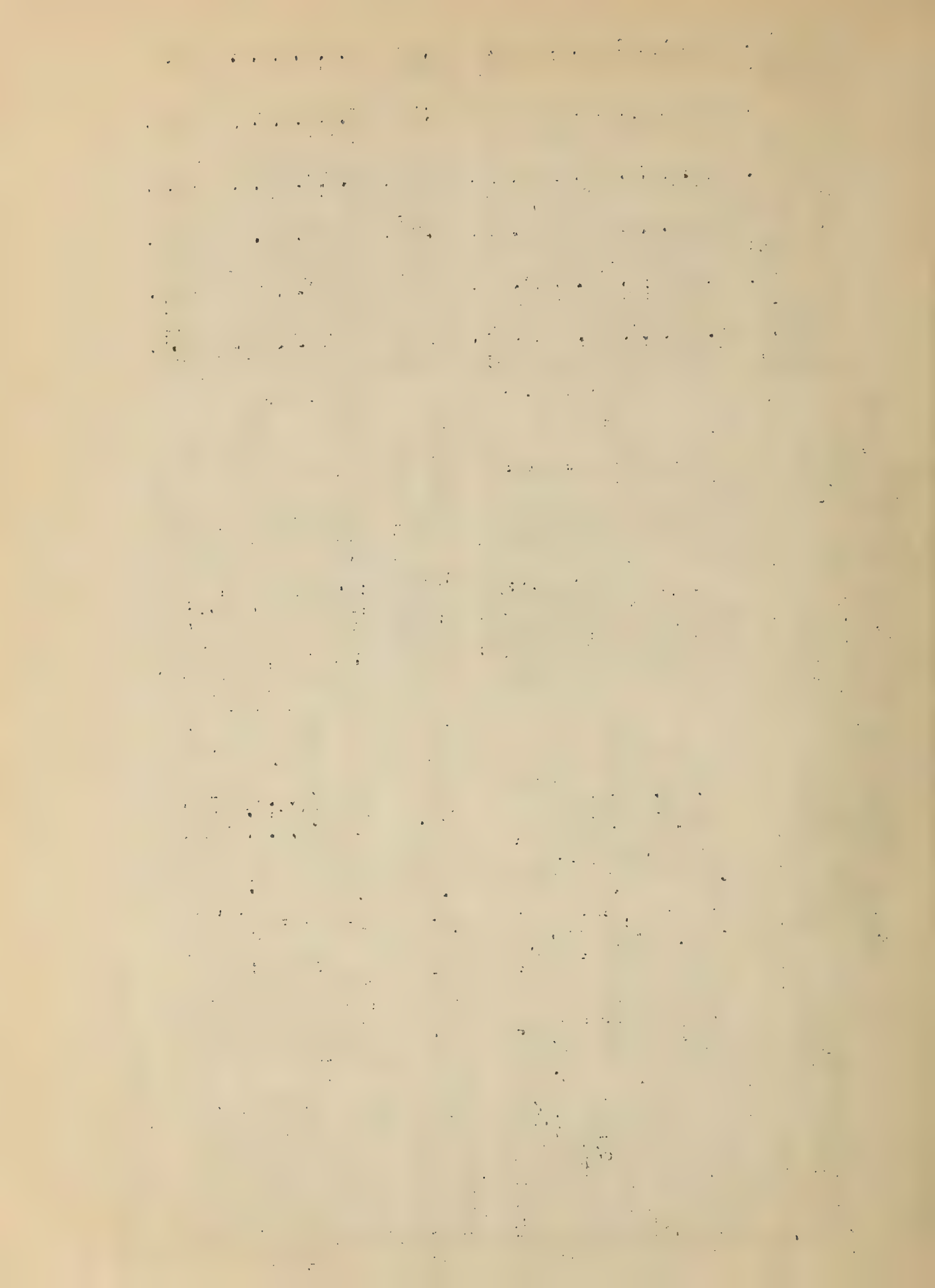
Main Drainage and Snow Course		Local Drainage		Location		Elev. National Forest		May 1 Snow Cover Measurements							
				Locality		Descrip- tion				Av. Snow Depth		Av. Water Content			
No.	Snow Course			State				Av. @	In.	1942	In.	1943	Av. @	In.	1943
NORTH PLATTE RIVER															
1	Cameron Pass	Michigan Cr.	Cameron Pass	Colo.	2-6N-76W	10300	Roosevelt	61.4	66.1	40.0	23.8	22.0	18.0		
7	Park View	Illinois Cr.	7mi. SE. Rand	"	24-5N-78W	9200	Routt	18.8	32.2	0.7	7.2	9.8	0.1		
8	Columbine Lodge	Grizzly Cr.	Rbt. Ears Pass	"	21-5N-82W	9300	"	43.2	49.5	29.0	18.6	18.1	12.5		
51	Big Creek Lake	Big Creek	5mi. SW. Pearl	"	9-11N-82W	9000	"	14.2	--	4.7	4.6	--	1.6		
62	Willow Creek P.*	Illinois Cr.	Willow Cr. Pass	"	1-4N-78W	9500	Arapaho	33.8	42.0	11.0	13.1	14.5	3.1		
7	Bottle Creek	Encampmt Cr.	7mi. SW. Encampmt	Wyo.	24-14N-85W	8200	MedicineBow	20.4	23.1	4.4	7.9	7.0	2.0		
8	Webber Spring	"	10mi. W.	"	27-14N-85W	9000	"	43.9	40.8	26.9	17.6	13.4	12.1		
9	Old Battle	"	12mi. W.	"	29-14N-85W	9800	"	77.8	82.5	62.1	32.4	31.5	29.8		
37	North French Cr.	N. French Cr.	Cent/Saratoga	"	27-16N-80W	10200	"	81.8	89.2	65.3	33.8	32.0	32.0		
38	N. Barre tt Cr. #2	Barre tt Cr.	"	"	30-16N-80W	9400	"	55.0	52.0	34.9	21.2	17.3	14.6		
39	Ryan Park #2	"	"	"	34-16N-81W	8400	"	17.5	19.6	0.0	6.2	4.9	0.0		
					Average for Drainage			45.4	49.7	27.4	18.2	17.0	12.4		
SWEETWATER RIVER															
29	Grannier Meadows	Rock Creek	20mi. SW. Lander	Wyo.	19-30N-100W	9000	Washakie	29.8	12.9	37.0	10.9	3.6	16.8		
47	South Pass*	"	19mi. " "	"	13-30N-101W	9000	"	30.7	14.5	41.6	10.6	3.7	18.0		
					Average for Drainage			30.2	13.7	39.3	10.8	3.6	17.4		
LARAMIE RIVER															
3	Brooklyn Lake	Nash Fork	7mi. NW. Centennial	Wyo.	11-16N-79W	10200	MedicineBow	52.9	57.9	43.5	21.8	17.7	19.9		
11	Fox Park	Fox Creek	Fox Park	"	21-13N-78W	9200	"	18.1	28.6	3.5	6.9	7.5	1.4		
34	Pole Mountain#2*	Soldier Cr.	10mi. SE. Laramie	"	35-15N-72W	8700	"	5.0	21.0	0.0	1.3	4.4	0.0		
35	Libby Lodge #2	Libby Creek	3mi. NW. Centennial	"	29-16N-78W	8700	"	8.6	13.7	4.4	2.8	3.7	2.2		
36	Hairpin Turn#2	Nash Fork	5mi. NW.	"	24-16N-79W	9500	"	28.6	31.4	24.4	9.8	7.1	10.4		
4	W. Port-G-P. Tunnel	Laramie R.	4mi. N. Chambers L.	Colo.	7-8N-75W	8600	Roosevelt	10.7	--	0.0	3.7	--	0.0		
50	Deadman Hill*	Deadman Cr.	10mi. W. R. Feather	"	26-10N-75W	10200	"	--	--	--	--	--	--		
71	Deadman Hill#2*	Deadman Cr.	8mi. SW. "	"	6-9N-74W	10200	"	--	--	--	--	--	--		
88	Roach	LaGarde Cr.	8mi. NW. Glendevey	"	5-10N-77W	9800	"	51.2	--	42.8	19.2	--	15.7		
					Average for Drainage			22.6	30.5	15.2	8.5	8.1	6.8		

\*On adjacent drainage

\*On adjacent drainage

@Average for period of record





**MISSOURI AND ARKANSAS RIVER WATERSHEDS**  
**Summary of Federal and State Cooperative Snow Surveys**  
**Issued May 10, 1943, at Fort Collins, Colorado**

No.	Main Drainage and Snow Course	Local Drainage	Location		Elev.	National Forest	May 1 Snow Cover Measurements					
			State	Locality			Description	Av. Snow Depth		Av. Water Content		
								1942	1943	1942	1943	
SOUTH PLATTE RIVER												
14	Hoosier Pass	S. Platte R. Colo.		Hoosier Pass	11400	Pike	31.0	43.4	24.0	10.1	13.5	8.7
15	Fairplay	" " "		Fairplay	10000	"	0.0	T	0.0	0.0	T	0.0
83	Jefferson Cr. #2	Jefferson Cr. "		5mi. NW. Jefferson	10100	"	11.0	21.4	14.9	3.0	5.9	4.7
				Average for Drainage			14.0	21.6	13.0	4.4	6.5	4.5
CROW CREEK												
34	Pole Mountain #2	Crow Creek Wyo.		10mi. SE. Laramie	8700	Medicine Bow	5.0	21.0	0.0	1.3	4.4	0.0
POUDRE RIVER												
1	Cameron Pass	Joe Wright Cr. Colo.		Cameron Pass	10300	Roosevelt	61.4	66.1	40.0	23.8	22.0	18.0
2	Chambers Lake	Poudre River "		Chambers Lake	9000	"	8.6	16.7	1.4	3.2	4.7	0.6
3	Big South	" "		2mi. E. Chambers	8600	"	0.9	6.1	0.0	0.2	1.7	0.0
50	Deadman Hill	No. Poudre R. "		10mi. W. R. Feather	10200	"	--	--	--	--	--	--
65	Lake Irene*	Big S. Poudre "		1mi. SW. Milner P.	10600	Ry. Mtn. N.P.	64.8	74.8	48.8	23.8	22.6	20.9
68	Four Glass Lake	L. S. Poudre "		2mi. NW. Pingree P.	9500	Roosevelt	21.6	35.3	23.4	7.6	10.2	10.9
71	Deadman Hill #2	N. Poudre R. "		8mi. SW. R. Feather	10200	"	--	--	--	--	--	--
				Average for Drainage			31.5	39.8	22.7	11.7	12.2	10.1
BIG THOMPSON												
65	Lake Irene*	Big Thompson R. Colo.		1mi. SW. Milner P.	10600	Ry. Mtn. N.P.	64.8	74.8	48.8	23.8	22.6	20.9
95	Hidden Valley #2	Hidden Valley Cr. "		9mi. W. Estes P.	10200	" " "	44.1	56.6	33.9	12.8	13.4	12.2
				Average for Drainage			54.4	65.7	41.4	18.3	18.0	16.6
ST. VRAIN RIVER												
41	Wild Basin	N. St. Vrain R. Colo.		5mi. W. Allens P.	10000	Ry. Mtn. N.P.	36.4	53.0	37.0	12.9	14.5	14.6
BOULDER CREEK												
5	E. Port. Moffat T.	S. Boulder Cr. Colo.		East Portal	9400	Roosevelt	4.6	22.0	0.0	1.3	6.6	0.0
60	University Camp #2	N. Boulder Cr. "		5mi. SW. Ward	10300	"	54.7	72.0	50.0	20.3	23.2	22.6
				Average for Drainage			29.6	47.0	25.0	10.8	14.9	11.3

\*On adjacent drainage

Average for period of record





## MISSOURI AND ARKANSAS RIVER WATERSHEDS

## Summary of Federal and State Cooperative Snow Surveys

Issued May 10, 1943, at Fort Collins, Colorado

Main Drainage and Snow Course	Local Drainage	State	Location		Elev.	National Forest	May 1 Snow Cover Measurements					
			Locality	Description			Av. Snow Depth	Av. Water Content	1942	1943	1942	1943
61 Loveland Pass #2	Clear Creek	Colo.	10mi. W. Georgetown	27-4S-76W	10100	Arapaho	In. 36.5	In. 50.0	15.0	12.5	16.1	6.0
ARKANSAS RIVER												
19 Tennessee Pass	Tennessee Cr.	Colo.	Tennessee Pass	21-8S-80W	10200	Cochetopa	14.3	22.2	0.0	4.7	5.9	0.0
21 Twin Lakes Tun.	Take Creek	"	9mi. W. Twin Lakes	22-11S-82W	10500	"	24.0	38.8	14.1	7.8	11.1	5.2
42 Marshall Creek*	Poncha Cr.	"	Marshall Pass	24-48N-6E	10800	"	40.5	45.4	11.7	9.9	13.5	4.9
43 Poncha Creek	"	"	"	19-48N-7E	10500	"	21.0	40.5	1.5	7.5	12.9	0.8
72 Whiskey Creek #2	Whiskey Cr.	"	Whiskey Cr. Pass	37-2N10S-2W	10300	Maxwell Gr.	15.1	29.7	0.0	5.6	10.6	0.0
74 LaVeta Pass #2*	Cuchara Cr.	"	LaVeta Pass	22-28S-70W	9300	San Cristobal Gr.	8.6	29.0	0.0	3.3	11.3	0.0
78 Four Mile Park #2	Lake Creek	"	3mi. SW. Twin L.	23-11S-81W	9700	Cochetopa	0.9	0.0	0.0	0.3	0.0	0.0
79 Fremont Pass #2	E. Fork Ark. R.	"	Fremont Pass	2-8S-79W	11400	Arapaho	49.6	63.4	46.9	17.0	19.2	17.6
81 Blue Lakes #2	Cuchara Cr.	"	15mi. SW. LaVeta	30-31S-69W	10000	San Isabel	18.2	37.2	0.8	6.6	13.5	0.2
92 Monarch Pass	S. Fork Ark. R.	"	Monarch Pass	16-49N-6E	10500	Cochetopa	55.8	75.8	28.3	19.8	23.7	11.1
Average for Drainage							24.8	38.2	10.3	8.2	12.2	4.0

\*On adjacent drainage @ - Average for period of record

## RESERVOIR STORAGE

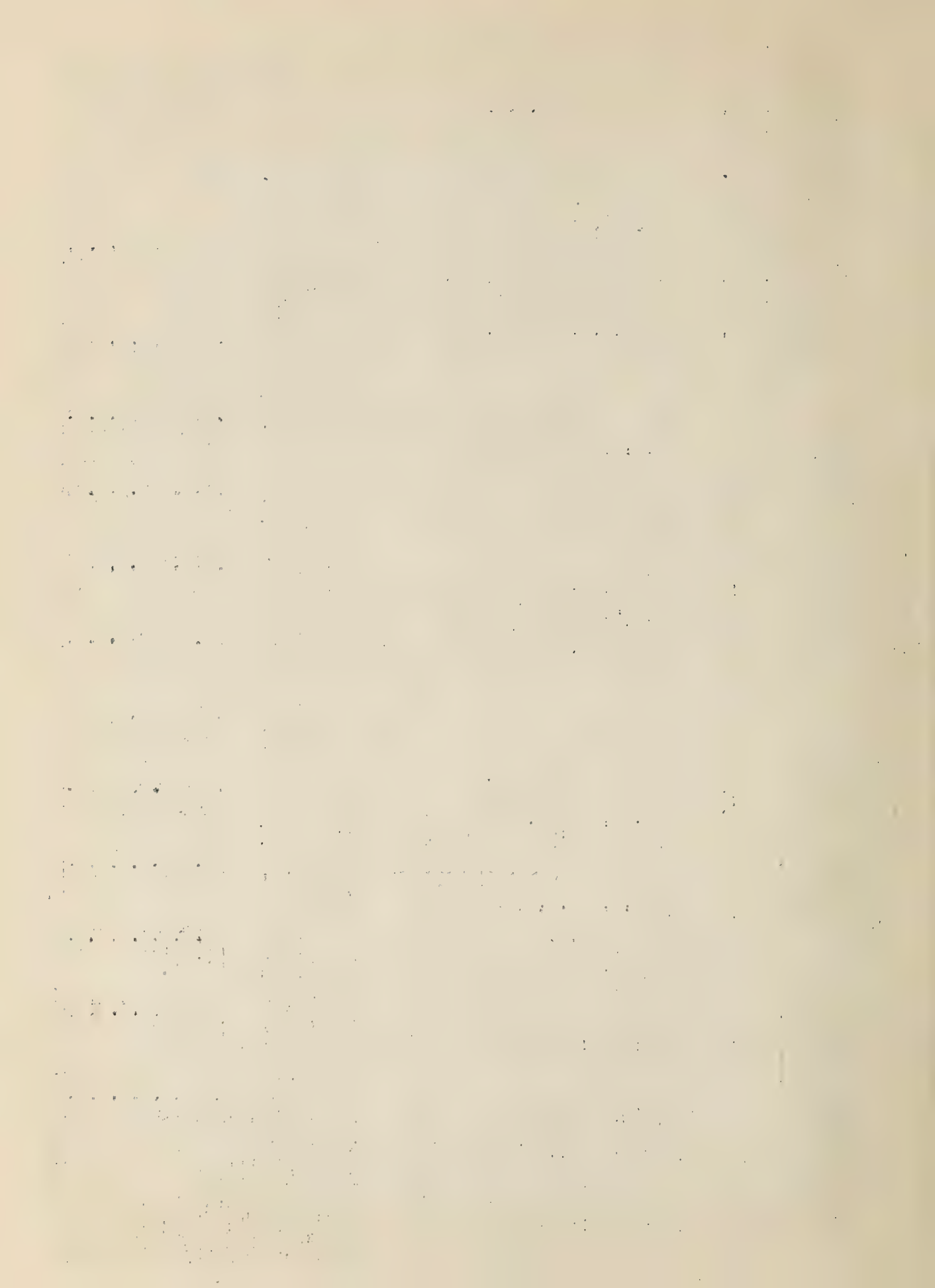
Reservoir Storage in Thousands of Acre-Feet, Colorado and Wyoming, as of May 1, for the years 1934 to 1943, inclusive. (Based on data gathered by State Engineer of Colorado, U.S. Bureau of Reclamation and other agencies)

A = Percentage of capacity. B = Percentage of 10-year average. C = Percentage of filling forecast for 1943.

Reservoir	Capacity	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	10 yr. Avg.	A	B	C
Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	%	%	%
SOUTH PLATTE DRAINAGE															
Eleven Mile	81.9	---	---	4.8	16.4	27.4	66.8	70.5	81.9	81.9	81.9	54.0	100	152	100
Cheeseman	79.0	43.4	18.7	32.0	48.7	34.4	79.1	59.8	49.7	79.1	79.1	52.4	100	151	100
Marston	18.9	17.1	13.8	14.2	16.7	16.7	15.4	16.6	16.6	15.4	15.6	15.8	83	99	100
Barr	32.2	17.8	7.4	11.4	20.0	13.3	25.6	11.0	10.5	28.6	27.3	17.3	85	158	100
Milton	24.4	10.5	1.8	3.5	11.0	4.0	15.9	3.9	4.4	19.6	19.6	9.4	80	208	100
Standley	18.5	0.0	2.8	13.4	15.8	12.2	15.7	8.1	11.3	17.9	17.0	11.4	92	149	100
Marshall	10.3	3.1	0.1	4.1	6.0	6.9	6.2	1.6	5.4	8.7	3.1	4.5	30	69	30
Antero	33.0	0.0	0.0	0.0	0.0	0.0	11.5	11.1	0.0	13.0	23.8	5.9	72	403	100

pSome averages for shorter periods.





## RESERVOIR STORAGE, Cont.

A = Percentage of capacity. B = Percentage of 10-year average. C = Percentage of filling forecast for 1943.

Reservoir	Capacity	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	10-yr. Avg.	A	B	C
Ac-ft.		Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	%	%	%
SOUTH PLATTE DRAINAGE, Continued															
Horse Creek	20.6	1.3	0.0	0.0	5.2	1.1	13.9	0.0	0.0	12.7	12.6	4.7	61	268	75
Riverside	57.5	46.7	12.7	44.1	47.0	30.7	54.6	21.0	30.5	55.7	57.5	40.1	100	143	100
Empire	37.7	24.7	0.0	18.6	24.7	23.0	34.4	23.9	20.3	35.5	34.9	24.0	93	145	100
Jackson Lake	35.4	33.4	31.7	31.2	33.4	33.2	34.1	33.4	33.7	35.4	33.9	33.3	96	101	100
Prewitt	32.8	23.2	4.2	12.0	19.2	9.7	28.6	7.3	6.8	28.4	28.8	16.8	88	172	100
Point of Rocks	70.0	60.0	30.1	56.8	64.3	38.0	66.4	35.1	44.2	67.5	68.6	53.1	98	129	100
Julesburg	28.2	21.9	22.8	22.0	20.9	22.9	21.5	22.4	23.1	23.0	22.9	22.3	81	102	100
Baker Meadow	11.7	1.4	3.4	3.1	2.7	2.7	1.6	3.6	7.9	2.6	4.6	3.4	39	135	50
Albion	1.1	0.6	1.1	0.0	1.1	1.1	0.7	0.7	1.1	1.1	1.1	0.9	100	122	100
Union	12.7	4.1	0.0	2.9	7.5	3.1	12.6	2.6	0.8	6.7	12.7	5.3	100	240	100
Lake Loveland	14.3	2.1	0.7	3.0	1.0	1.0	12.3	0.2	1.2	7.0	13.2	4.2	92	314	100
Boyd Lake	44.0	3.2	2.3	3.1	3.0	0.0	20.0	0.2	0.0	0.0	33.7	6.6	77	510	100
Lone Tree	9.2	8.0	1.2	9.0	9.0	9.0	9.2	4.0	8.7	9.2	9.2	7.7	100	119	100
Mariano	5.4	3.3	0.4	3.0	3.0	3.9	4.8	1.2	2.7	4.6	4.6	3.2	85	144	100
Windsor Res.	18.6	11.8	2.8	11.2	10.5	11.8	17.7	5.0	11.8	14.8	17.2	11.5	92	149	100
Cache la Poudre	9.5	9.1	2.8	5.7	7.3	7.5	9.2	4.7	7.2	9.3	10.1	7.3	106	138	100
Fossil Creek	11.6	11.2	2.9	8.1	7.1	5.5	11.7	3.7	5.6	10.3	10.7	7.7	92	139	100
Terry	8.2	4.4	4.1	4.2	4.1	4.1	5.9	4.1	4.0	6.4	6.2	4.8	76	129	100
Halligan	6.4	2.0	3.0	2.9	4.1	4.9	4.3	1.7	0.0	2.8	6.4	3.2	100	200	100
Chamber's Lake	8.8	4.0	0.7	2.8	2.4	3.1	7.3	2.2	3.3	3.1	4.2	3.3	48	127	100
Cobb Lake	34.3	2.6	0.7	4.8	1.5	0.5	0.0	1.9	0.8	0.8	11.4	2.5	33	456	100
Black Hollow	8.0	2.7	0.2	1.7	0.8	1.5	5.3	2.1	1.5	2.8	5.4	2.4	68	225	100
ARKANSAS DRAINAGE															
Twin Lakes	57.9	6.6	13.8	14.5	14.4	7.2	28.4	15.3	11.5	37.5	27.0	17.6	47	153	100
Sugar Loaf	17.4	5.1	4.2	6.5	5.1	2.4	6.9	1.7	5.2	13.9	12.0	6.3	69	191	100
Clear Creek	11.4	2.3	0.2	0.2	0.0	0.7	3.5	1.0	0.8	5.1	8.9	2.3	78	387	100
Meredith	41.9	0.0	0.0	0.0	3.0*	0.0	24.3	0.0	0.0	33.3	34.1	9.5	82	359	100
Horse Creek	26.9	0.0	0.0	0.0	7.9	0.0	8.3	0.0	0.0	11.6	19.5	4.8	73	407	100
Adobe Creek	61.6	0.0	0.0	0.0	1.7	0.0	8.2	0.0	0.0	58.2	46.0	11.4	75	403	100
Cucharas	40.0	6.3	—	4.3	25.2	4.3	2.1	0.4	3.1	25.7	0.2	7.2	0	3	25
Two Buttes	40.9	7.2	3.0	8.8	28.7	25.5	26.9	14.2	12.0	13.3	9.0	14.9	22	60	50
John Martin	655.0	—	—	—	—	—	—	—	—	—	30.8	—	—	—	—
Great Plains		0.0	0.0	0.0	0.0	0.0	33.4	0.0	0.0	63.6	101.3	19.8	—	—	100







## RESERVOIR STORAGE, Cont.

A = Percentage of capacity.		B = Percentage of 10-year average.										C = Percentage of filling forecast for 1943.			
Reservoir	Capac- ity	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	10-yr. Avg. $\beta$	A	B	C
	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	%	%	%
ARKANSAS DRAINAGE, Continued															
Model		2.7	0.0	2.6	1.8	3.0	8.5	1.3	5.3	9.1	6.4	4.1	--	156	100
NORTH PLATTE DRAINAGE															
Pathfinder	1070.0	331.8	133.2	263.5	343.8	352.8	430.3	77.7	92.0	261.9	318.6	260.6	30	122	50
Guernsey	72.7	37.6	24.8	44.7	37.5	52.5	42.0	47.1	50.3	49.5	44.8	43.1	62	104	100
Seminole	1020.0	--	--	--	--	0.0	85.5	66.6	98.8	160.8	343.9	151.1	34	227	75
Alcova	165.8	--	--	--	0.0	99.4	123.5	92.8	74.3	133.4	120.4	107.3	73	112	100
Wheatland	70.4	--	13.0*	35.0*	20.9	26.1	51.0	9.0	17.7	30.0	56.0	28.7	80	195	100
Lake Alice	13.8	5.6	0.0	2.2	5.3	3.0	3.8	0.0	2.8	4.5	6.5	3.4	47	191	100
Minatare	60.8	38.8	5.3	18.1	8.1	30.6	38.5	16.9	13.9	38.1	53.8	26.2	89	205	100
Kingsley-Suther- land	2180.0	--	--	57.5	--	--	82.0	89.6	170.0	540.0	977.0				
BIG HORN DRAINAGE															
Bull Lake	155.0	--	--	--	--	0.0	42.8	38.8	15.7	67.7	46.7	42.3	30	110	100
Pilot Butte	30.0	--	--	--	--	21.5	19.8	24.7	21.7	20.4	18.2	21.1	61	86	100
SHOSHONE DRAINAGE															
Shoshone	456.6	318.2	354.8	387.7	342.1	317.1	394.3	106.9	36.9	357.0	391.9	300.7	86	130	100
SNAKE DRAINAGE															
Jackson Lake	847.0	348.6	206.0	331.5	504.2	430.6	620.8	492.7	332.1	462.8	429.0	415.8	51	103	100
CHEYENNE DRAINAGE															
Belle Fourche	198.1	111.4	68.9	78.0	50.6	104.5	64.5	43.8	60.6	155.5	159.7	89.8	81	177	100

Some averages for shorter periods

\*Estimated



